

MORE PHARMACEUTICAL POLLUTANTS FOUND IN WATERWAYS AND GROUNDWATER IN US & CANADA by J. Raloff © 2000

Over the past decade, European chemists have been documenting widespread pharmaceutical contamination of their lakes, streams and groundwater. In early April, US and Canadian scientists offered preliminary confirmation that traces of drugs, excreted by people and livestock, similarly pollute American and Canadian waters. They presented their findings at the first major American symposium on pharmaceuticals in water, held as part of the American Chemical Society's Spring national meeting.

Water pollution by drugs "is a newly emerging issue", observes Christian G. Daughton, symposium co-organiser and chief of environmental chemistry at the US Environmental Protection Agency's National Exposure Research Laboratory in Las Vegas, Nevada. By offering a US venue for the meeting "and participation by many European leaders in this field", he hoped to awaken domestic interest and catalyse research on the topic (*Science News*, 21 March 1998, p. 187).

Ironically, Daughton notes, EPA scientists who examined the sludge from a US sewage treatment plant 20 years ago found that the incoming sewage contained excreted aspirin, caffeine and nicotine. Daughton says that the findings were written off as a curiosity and were all but forgotten.

At about the same time, recalls Herman Bower of the US Agricultural Research Service in Phoenix, Arizona, the cholesterol-lowering drug clofibrac acid turned up in a groundwater reservoir being tapped to meet the Phoenix community's thirst. The drug had entered with treated sewage which the city had been using to replenish the aquifer.

"At the time," Bower recalls, "we didn't pay attention to the finding." It should have been a wake-up call, he now argues, because if clofibrac acid could pass through a sewage treatment plant and percolate through soil unscathed, so could a host of other drugs.

And they do, as new studies show.

Chris Metcalfe of Trent University in Peterborough, Ontario, Canada, reports finding a broad mix of drugs, including anti-cancer agents, psychiatric drugs and anti-inflammatory compounds. "Levels of prescription drugs that we have leaving sewage treatment plants in Canada are sometimes higher than what's being seen in Germany," he says. He explains that many North American cities employ more rudimentary sewage treatment methods than do those in Germany.

Daughton also observes that a million US homes send their essentially untreated sewage directly into the environment.

Two years ago, the symposium's other co-organiser, Thomas

A. Ternes, documented unexpectedly high concentrations of drugs, many of which "measured in parts per billion (ppb)", both in raw sewage and in water leaving treatment plants in Germany. The chemist, who is based at the Institute for Water Research and Water Technology in Wiesbaden, Germany, now finds that these drugs enter groundwater.

Sewage effluent can amount to at least half the water in many of Germany's smaller rivers, Ternes notes. Groundwater fed by streams carrying relatively undiluted effluent can be tainted with 1 ppb of carbamazepine, an anticonvulsive drug. Ternes has also detected similar amounts of the anti-inflammatory drug diclofenac, and up to 2.4 ppb of iodine-based drugs used to improve contrast in X-rays.

Because people discard their excess drugs, the town dump can also be a source of pharmaceutical pollution. Under one landfill,

Ternes found groundwater tainted with 12 ppb of clofibrac acid and 1 ppb of phenazone, an analgesic. The latter medication also turned up in groundwater—"but at far higher concentrations"—under a leaking dump in Zagreb, Croatia, notes Marijan Ahel of the Rudjer Boskovic Institute in Zagreb. Some of his water samples had the drug at as much as 50 times the concentration detected by Ternes.

In the United States, federal scientists recently began probing another source of drug pollution: large feedlots for livestock. An estimated 40 per cent of the antibiotics produced in the United States is fed to livestock as growth enhancers.

Geochemist Mike Meyer, of the US Geological Survey in Raleigh, North Carolina, and his colleagues have begun looking for antibiotics in hog-waste lagoons. Three drugs frequently show up, one in concentrations approaching one part per million. The same three antibiotics, which are also prescribed for people, often appear in local waters—though, as Meyer notes, "usually only at one-tenth to one-hundredth the concentrations in the lagoons". "So, it appears we're get-

ting transport of these antibiotics into surface and ground waters," he told *Science News*.

Meyer says that colleagues at the Centers for Disease Control and Prevention in Atlanta, Georgia, have begun sampling bacteria from the tainted waters to investigate their responses to the antibiotics present. Their findings could begin to resolve a long-standing question: what is the contribution, if any, of livestock to potentially dangerous reservoirs of bacteria resistant to common antibiotics (*Science News*, 5 June 1999, p. 356)?

Traces of drugs are sometimes making it all the way into tap water. Thomas Heberer, of the Technical University of Berlin, reported finding traces of at least three pharmaceuticals in samples from his home tap. The concentrations, however, were near the limits of detection—a few parts per trillion. Moreover, he

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found that running this water through an activated carbon filter removed all vestiges of the drugs.

Ternes's studies confirm that two disinfection agents, "activated carbon and ozone", which are used in many European drinking-water plants, generally remove any traces of drugs. It's because these relatively costly technologies aren't employed for treating sewage, he notes, that a large share of the drugs flushed down toilets can reach open waters.

The symposium's scientists note that, to date, few if any toxicological studies have evaluated risks posed by chronic exposure to trace concentrations of pharmaceutical drugs. However, most of the participants suspect that the biggest risks face aquatic life, which may be bathed from cradle to grave in a solution of drugs of increasing concentration and potency.

David Epel, of Stanford University's Hopkins Marine Station in Pacific Grove, California, is especially concerned about new drugs called "efflux-pump inhibitors". These drugs, he says, are designed to keep microbes from ejecting the antibiotics intended to slay them, and also impede the cellular pumps that nearly all animals use to get rid of toxicants (*Science News*, 12 February 2000, p. 110).

Epel is concerned that if pump-inhibiting drugs enter the aquatic environment, they might render wildlife vulnerable to concentrations of pollution that had previously been innocuous.

(Source: By J. Raloff, *Science News*, vol. 157, no. 14, 1 April 2000, p. 212, website www.sciencenews.org/20000401/fob1.asp, posted 8 April 2000)

PROMIS SOFTWARE: A LINK TO THE ECHELON SPYING SYSTEM?

by Kenn Thomas © 2000

The research of Danny Casolaro, the writer who died in Martinsburg, West Virginia, in August 1991 while investigating an intelligence cabal called The Octopus, continues to contextualise current events in ways that the mainstream media fail at daily. For instance, it seems more than likely that the vast spy satellite system known as *Echelon*, now emerging as a major topic in international public debate about the surveillance society,

relies on some permutation of the PROMIS software—a system that was crucial to Casolaro's research.

PROMIS was stolen from the Inslaw company by Ed Meese cronies in the US Justice Department under Ronald Reagan. It became infamous for its "back door", allowing the Octopus cronies to spy on clients who had bought PROMIS illegally.

In addition to high-resolution visual monitoring, the *Echelon* satellites—maintained and utilised by such US intelligence groups as the National Security Agency (NSA) and the National

Reconnaissance Office (NRO)—monitor phone calls and e-mail transmissions for key words like "bomb" and "assassination" that ostensibly might expose terrorists. A growing body of independent researchers, however, have come to understand that the system has been used for industrial espionage and for the tracking of private citizens and political dissidents. The *Echelon* satellites use advanced software-hardware technology that mystifies researchers. Amidst official denials that it can be done at all,

these researchers are beginning to focus on the real question of *how* it can be done. The answer to that may rest with PROMIS and Danny Casolaro's research.

The development and use of Inslaw's PROMIS, to the extent of Casolaro's research, are detailed in *The Octopus: Secret Government and the Death of Danny Casolaro*, the book I co-authored with Jim Keith. However, the permutations and evolutionary mutations of PROMIS have since become the gist of much further speculation and research. At the start of the Clinton Administration, for instance, PROMIS illuminated the death of White House aide Vince Foster with suggestion that it has been introduced into international banking systems. According to one theory, Foster's Swiss bank accounts were made vulnerable in this way and may have led to his suicide or murder.

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PROMIS came up again on the periphery after the Heaven's Gate cult incident, when it became apparent that the last significant news from the area where the cult lived, in Rancho Santa Fe near San Diego, involved the murders of Ian Spiro and his family. Spiro was a British intelligence spook who had been helping Danny Casolaro's main informant, Michael Riconosciuto—the creator of the PROMIS back door.

Even the death of Diana, Princess of Wales has a tentacle reaching back to PROMIS in the person of Adnan Khashoggi, Dodi Fayed's uncle. Khashoggi's signature appeared on a document that had Casolaro excited on the day that he died. That very night, he was due to meet with someone named "Ibrahim" who would have shed more light on Khashoggi's role in the Iran-Contra scandal. Khashoggi is a notorious arms merchant responsible for developing supra-legal contracts that sustain Middle East defence and oil industry corruption.

Those politics certainly played a role in whatever happened to Diana and Dodi in the Pont de l'Alma tunnel. They came into play again with the tragic death of my *Octopus* co-author, Jim Keith, in September 1999. Keith died of a blood clot after reluctantly going into a Reno, Nevada, hospital for minor knee surgery. Rumours were rife that the odd death had to do with Keith's reporting on the possibility that Diana was pregnant at the time of her death. In a column for the website Nitro News (now defunct), Keith said he would name the physician who told Diana she was pregnant. Word had it that Keith was killed before he could name that name. A thorough investigation of Keith's death—a tremendous loss to the conspiracy information underground—has yet to be made.

Of paramount interest to the desktop conspiracy student, however, is the ongoing development of PROMIS-like back doors that have been popping up to spy on average personal-computer users. These are the most likely suspects as somehow being linked to the *Echelon* system.

Rumour had it that when the original versions of Windows 95 appeared, they contained a back door that surreptitiously read the user's hard drive and reported it back to someone—Bill Gates? *Echelon*? In the trans-global corporate state, the distinction hardly needs to be made. This rumour came with the story that pressing some key combination during the opening "clouds" sequence of Windows 95 brought to the screen a photograph of a prized Palamino owned by Gates. The first draft of Casolaro's book on the *Octopus* was entitled "Behold, A Pale Horse". The "back door" feature ostensibly was removed from later versions of Windows, and today the software has a voluntary registration that does the same thing, only with the consent of the spied-upon. Presently, there is no indication of how it works with the pre-installed software often bought by many non-computer-savvy people.

The standard consumer computer and its Internet connection may contain the means by which *Echelon* spies on the world. Last January, a "glitch" in the protocol for removing phone listings from the Yahoo! site gave private address listings when phone numbers were punched in. Glitches found in the Netscape browser in 1995—one that allowed Netscape to extract the history of a user's session, and another that subverted encryption/decryption operations—won \$1,000 from a bug bounty hunter group for two young hackers in Australia and San Francisco, USA. Perhaps it is not surprising that two years later, presumably long after it fixed these other bugs, Netscape awarded another \$1,000 plus a T-shirt to Danish software company Cabocomm when it discovered another glitch. This one allowed a website operator to read anything stored on the hard drive of a computer logged on to the site. Implications of a more advanced technology no doubt employed by *Echelon* are onerous.

Encryption security and the "Clipper chip"—a "front door" strategy for keeping tabs on the Internet—served as issues with the general public in preparation for the coming *Echelon* debate. Philip Zimmerman used a public domain algorithm to create the Pretty Good Privacy encryption software, and he publicised it freely, bringing that protection to the masses. However, even cybernerds have trouble dealing with PROMIS/*Echelon* possibilities that may not even exist, as some have argued.

Daniel Brandt, producer of CIABase/NameBase, a renowned data engine on intelligence literature and personalities, argues: "...a 'back door' to get around password protection is easy for any programmer... [but] you still need physical access to the computer, either through a direct-connect terminal or a remote terminal through the phone lines, in order to utilise a back door. [It is difficult] to believe that foreigners allow technicians from another country to install new computer systems in the heart of their intelligence establishments, and don't even think to secure physical access to the system before they start entering their precious data...claims that PROMIS...can suck in every other database on Earth,

such as those used by utility companies, and correlate everything automatically...needlessly discredit [whistleblowers] by their own high-tech gullibility."

Bill Hamilton, the owner of Inslaw—the company which originally developed PROMIS—maintains that the software could run on "any UNIX machine, Hewlett Packard UNIX, RISC 6000, AT&T, AS400, under its own operating system, and on mainframes under MVS"; that it was comprised of 88 program modules; and that the source code, replete with the Inslaw name throughout the code commentary, was kept by any government which had it. When asked how a foreign country could modify the source code without discovering the back door, Hamilton was

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explicit about the connection to *Echelon*: "I don't know what's meant by the 'back door'. What we've been told is that not only the software was sold, but computers with extra chips... What the chips do, we've been told—the extra chips—is to broadcast the data inside PROMIS to satellites owned by the NSA...but we don't know enough about it as they've never shared anything with us." This possibility addresses Daniel Brandt's objection that physical access is required for a back door to work.

Writer J. Orlin Grabbe elaborated on the idea in a recent column: "Since intelligence computers are, for security reasons, usually not connected to external networks, the original back door was a broadcast signal. The PROMIS software was often sold in connection with computer hardware (such as a Prime computer) using a specialised chip. The chip would broadcast the contents of the existing database to monitoring vans or collection satellites, using digital spread spectrum techniques whenever the software was run. Spread spectrum techniques offer a way to mask, or disguise, a signal by making it appear as 'noise' with respect to another signal. For example, one may communicate covertly on the same spectrum as a local TV broadcast signal. From the point of view of a TV receiver, the covert communication appears as noise and is filtered out. From the point of view of the covert channel, the TV signal appears as noise. In the case of the PROMIS broadcast channel, the signal was disguised as ordinary computer noise..." Thereafter, unfortunately, Grabbe's discussion—which includes correspondence with PROMIS architect Michael Riconosciuto—becomes more technical than is useful to a non-technical person's understanding of how PROMIS works.



It is the same with remarks about further criticism from Daniel Brandt, penned by Riconosciuto, which have circulated among conspiracy researchers. For example, Riconosciuto states: "As far as the requirement of special hardware to transmit data [is concerned] ...the example that Mr Brandt uses, that software can alone supply various combinations of ones and zeros to the CPU, only shows Mr Brandt's lack of knowledge of what Walsh functions are... Brandt's comments start out that computers radiate electromagnetic energy unless they are shielded. This is an insult. Anybody who has been around knows what Van Eyck backing is (decoding from a distance what is displayed on a CRT screen). An active phased array antenna is superfluous at the short distances he describes. A high-performance surveillance receiver such as those made for Watkins Johnson corporation, Stoddarts/Singer or Fairchild, will do the job quite nicely with a standard biconical antenna... Brandt will find that if an arbitrarily small section of a sine function is known, the function is known everywhere. This feature of the sine wave is referenced to sinusoidal waves that transmit information at a net rate of zero!... Mr Brandt's statement that software can only provide combinations of 1s and 0s to the CPU totally misses the point that Walsh functions are inherently suited to binary operations. This is one reason why such tight, compact code can be written around operations with Walsh functions. This is why it is so difficult to find these routines and differentiate them from routines normally used at the RTL (register transfer logic) level. This is at a level of programming that is one jump lower than machine language."

Which, again, is several steps above the average person's ability to follow these technical possibilities. It seems almost inarguable that the PROMIS software has properties and applications compatible with the *Echelon* military-industrial spy satellite system.

In addition to being a bell-ringer for the dangers PROMIS poses to the average person, Casolaro—and perhaps Jim Keith—died in part trying to uncover its other, more sinister capacities. *Echelon* has almost become the ultimate expression of the global conspiracy culture, and certainly the most obvious example of the encroaching surveillance society.

The developing interest in and protest over *Echelon's* existence is the best legacy of those who made sacrifices in trying to understand the role of The Octopus and the possibilities of PROMIS. This part of the story is still unfolding.

About the Author:

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MMR VACCINE LINK TO AUTISM NOW CLEARER

by Lorraine Fraser © 2000

Strong evidence for a link between MMR (mumps-measles-rubella) vaccination and autism and bowel disease in children was announced by UK doctors in February 1998. In a further study, led by Professor John O'Leary, the measles virus was found in the intestines of 24 out of 25 children who developed autistic enterocolitis after an apparently healthy infancy.

Speaking under oath before a hearing of the powerful US Congress Committee on Government Reform, Professor John O'Leary told how his state-of-the-art laboratory had identified the measles virus—something which certainly should not have been there—in samples taken from the intestines of no fewer than 24 of the 25 patients studied.

The findings of his vitally important study, reported for the first time on 6 April at the congressional hearing on autism, provide compelling new evidence linking measles virus infection and this terrible affliction. And they raise urgent new concerns over the safety of MMR vaccine—the combined mumps, measles and rubella vaccination given routinely to hundreds of thousands of children in Britain (and around the world) every year.

It is more than five years since Rosemary Kessick, desperate to find out why her previously healthy baby had developed terrible bowel problems and was suddenly behaving uncontrollably, first sought out the man who provided Professor O'Leary with those crucial biopsies from the autistic children. She approached Dr Andrew Wakefield, an honorary consultant gastroenterologist at the Royal Free Hospital in London and an acclaimed researcher on inflammatory bowel disease.

Dr Wakefield had never before seen a child like William, whose autism had descended on him almost overnight. When he examined the lining of William's bowel with a fibre-optic camera, he was stunned to discover an inexplicable abnormality. In February 1998, having seen 11 more patients with identical symptoms, he dared to suggest that parents such as Rosemary, who believe their children developed autism after receiving the MMR vaccine, should now be taken seriously.

In a scientific paper published in the leading medical journal *The Lancet*, Dr Wakefield and his colleagues described how they discovered this same pattern of inflammation of the bowel—which they believed was part of a new disease, autistic enterocolitis—in all 12 children. They reported that parents of eight of the children said that the youngsters' behaviour began to deteriorate after their MMR vaccinations. While there was no direct evidence of a link, Dr Wakefield said it must be properly investigated. He stressed he was not anti-vaccine and only wanted safe vaccination programs for children.

But within the medical establishment there is no greater heresy than to question the safety of a childhood vaccine. Dr Wakefield was quickly accused of undermining parents' confidence in MMR and of putting children's lives at risk because large numbers of parents had decided to shun the vaccine. From that day on, he was ostracised by the medical community. His meticulous studies on

the 12 children—and subsequently, hundreds more like them—were ignored by the UK Government and dismissed by "experts" from the Medical Research Council. He was ordered by his bosses at University College London not to speak to the Press.

Now, says Professor O'Leary, a leading independent pathologist from the Republic of Ireland, the new evidence from his laboratory must change all that. He is doubly concerned because another independent research group in Japan has also found the measles virus in the blood of three of Dr Wakefield's patients—and they say the genetic fingerprint is "consistent" with the strain used in MMR vaccine; so further studies are now imperative.

"The findings that I presented to Congress," said Professor O'Leary, "are the results of independent work carried out by my laboratory on material referred to us by Andrew Wakefield. The material that was given to us was sent in a blinded fashion. We did not know the name of the patients, the diagnosis or age before our tests were completed. There was no bias in terms of changing diagnosis or changing results to suit a particular hypothesis."

He said that of the 25 children with autistic enterocolitis whom his laboratory screened, 24 harboured the measles genetic fingerprint. Only one of the 15 control-group children—those who do not have autism—contained the virus.

"That is 96 per cent compared with 6.6 per cent, which is highly statistically significant and implies an association between the measles virus and this disease," said Professor O'Leary. "Measles virus is present in the gut of these children. It shouldn't be there. The next question is to find out what it is doing there, and there needs to be a full investigation of this with proper funding."

Parents in the UK came under enormous pressure from health visitors and GPs to have their children vaccinated

with MMR, with some families thrown off doctors' medical lists for refusing. The Government blocked the import of measles-only vaccine last year. Parents who want the single vaccine are forced to go overseas. If measles virus infection—from whatever source—is confirmed to be causing the chronic bowel changes and brain damage in at least this group of autistic children, it may be possible to find a treatment. Indeed, many parents have found that a strict diet can help their children.

The UK Department of Health has poured scorn on Professor O'Leary's study, yet, at the beginning of April, the Medical Research Council announced a massive survey of two million people across the UK, which is aimed at finding out more about autism and which would "be able to examine any possible association between autism and the MMR vaccine". The potential importance of Professor O'Leary's results will not be lost on solicitors for some 200 children—large numbers of them autistic—who are already suing the makers of MMR vaccine.

Professor O'Leary, who has now decided to widen his collaboration with Dr Wakefield, commented: "The time now is for real research. We need to work out what is going on."

For the hundreds of parents like Rosemary Kessick, that research cannot be done soon enough.

(Source: The Mail on Sunday, UK, 9 April 2000)

The findings raise urgent new concerns over the safety of MMR vaccine—the combined mumps, measles and rubella vaccination given routinely to hundreds of thousands of children every year.